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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,710	01/15/2002	Ananda M. Chakrabarty	11170/3	3837

757 7590 11/01/2005

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EXAMINER	
YU, MISOOK	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,710	CHAKRABARTY ET AL.	
	Examiner	Art Unit	
	MISOOK YU, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-23,26-28,30-40,42-44 and 46-50* is/are pending in the application.

4a) Of the above claim(s) *17-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23, 26-28, 30-40, 42-44, 46-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 17-22 remain withdrawn for reason of record from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Claims 17-23, 26-28, 30-40, 42-44, 46-50 are pending, and claims 23, and 26-28, 30-40, 42-44, and 46-50 are examined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This Office action contains new ground of rejection.

Claim Objections, Withdrawn

The objection of claims due to numbering is withdrawn.

Claim Rejections - 35 USC § 112

Claims 23, 30, 34-40, 39, 40, 43, 44, 46, 47, 48, and 50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The written description rejection is made because the claims are interpreted as drawn to method of using a genus of products recited as "azurin or a variant or derivative thereof", and 'cytochrome C551 or a variant or derivative thereof".

Applicant argues that the amendment to the claims would obviate the rejection. Applicant argument and amendment has been fully considered but found unpersuasive.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof.

In this case, the only factor present in the claims is a function of the compound. There is not even identification of any particular portion of the compound that must be conserved in order to be "cytotoxic factor, a variant or derivative thereof". Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. A definition by function alone "does not suffice, to sufficiently describe a coding sequence "because it is only an indication of what the gene does, rather than what it is." *Eli Lily*, 119 F.3 at 1568, 43 USPQ2d at 1406.

The specification discloses:

[0026] As used herein, the term "a variant or derivative thereof" refers to a compound or substance obtained by chemical modification or manipulation of genes encoding the compound or substance. When referring to a variant or derivative of a cytotoxic factor, the variant or derivative can be obtained by chemical modification of the cytotoxic factor, or by manipulation of genes encoding such cytotoxic factors, for example by altering the basic composition or characteristics of the cytotoxic factor, but not its toxicity. Similarly, a derivative of an inhibitor of a cytotoxic factor can include chemical modifications to the chemical structure of the inhibitor or manipulation of genes encoding the inhibitor. For example, the antibiotic penicillin can be chemically

modified to provide derivatives that are more potent or have a wider spectrum than penicillin itself.

Based on the definition, in order to make "variant and derivative thereof" of azurin or cytochrome C551, one has to screen which other factor other than the art-known sequence of azurin, and cytochrome C551 is secreted by a by a pathogenic microorganism and which stimulates cell death by necrosis or apoptosis, followed by cloning of the DNA sequence encoding the factor. Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of cytotoxic factor, variant or derivative thereof, given that the specification has only described azurin, and cytochrome C551, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph.

Claim Rejections - 35 USC § 102

Claims 23, 30-36, 38, 39, 40, 43, 47, 49, and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by US PAT 5,681,810 (28 October 1997, the '810 patent from now on).

Claims 23, 30-36, 38, 39, 40, 43, 47, 49, and 50 are drawn to method of modulating various cell death by administering to a patient a pharmaceutical comprising a azurin or variant or derivative thereof, or cytochrome C551 or variant or derivative thereof.

Applicant argues that the product, diphtheria toxin is different from the product used in the instantly claimed method. This argument has been fully considered but found unpersuasive because based on the definition of "variant or derivative thereof" at paragraph 26 (note the quotation above), the limitation "a variant or derivative thereof" either azurin, or cytochrome C551 do not have structure. Therefore, any compound isolated from bacteria (azurin was isolated from bacterial source) that meets the instantly claimed function associated with the broadly drawn "a variant or derivative thereof" of either azurin or cytochrome C551.

The '810 patent teaches method of modulating melanoma cell death either by administering to a patient a pharmaceutical comprising "a variant or derivative thereof" of either azurin or cytochrome C551. Note columns 7, 8 10, 11 especially Example 6 at column 15, and claims 11-15.

Claims 23, 30-36, 38, 39, 40, 43, 47, 49, and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by US PAT 5,972,899 (26 October 1999, the '899 patent from now on).

Claims 23, 30-36, 38, 39, 40, 43, 47, 49, and 50 are drawn to method of modulating various cell death by administering to a patient a pharmaceutical comprising

a azurin or variant or derivative thereof, or cytochrome C551 or variant or derivative thereof.

Applicant argues that Shigella toxin is outside the scope of the product being used in the claimed method.

This argument has been fully considered but found unpersuasive because the limitation "a variant or derivative thereof" is broadly defined in the specification and it is the Office's position that the Shigella toxin belongs to the broadly drawn limitation of he broadly drawn "a variant or derivative thereof" of either azurin or cytochrome C551.

Claims 40, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Zaborina et al., (1999, Infection and Immunity, vol. 67, pages 5231-42, A1 of IDS filed on 4/1/2002).

Claims 40, and 43 are interpreted as drawn to method of contacting cells with a cytotoxic factor, wherein the cytotoxic factor inhibits growth of the cells by killing the cells.

Zaborina et al., at page 5237-5239 under the heading "Physiolgical significance of the secretion of ATP-utilizing enzyme by mucoid *P. aeruginosa*" teach that secretion of the ATP-utilizing enzymes by mucoid *P. aeruginosa* inhibits or kills the cells being contacted by the secreted by the pathogenic microorganism. The ATP-utilizing enzymes secreted by mucoid *P. aeruginosa* of Zaborina et al., meets the limitation "a cytotoxic factor" in claim 40 because the specification at Paragraph [0022] defines as

"the term "cytotoxic factor" refers to a factor secreted by a pathogenic microorganism and which stimulates cell death by necrosis or apoptosis."

The rejection of claims 40, and 42-44, 47-49 under 35 U.S.C. **102(a)** as being anticipated by Zaborina et al., (2000, Microbiology, vol. 146, pages 2521-30, A4 of IDS filed on 4/1/2002) is withdrawn because The declaration filed on 08/10/2005 under 37 CFR 1.131 is sufficient to overcome the Zaborina II reference.

Claim Rejections - 35 USC § 103, Withdrawn

The rejection of claims 23, 26-32 under 35 U.S.C. 103(a) as being unpatentable over Zaborina et al., (2000, Microbiology, vol. 146, pages 2521-30, A4 of IDS filed on 4/1/2002) in view of the '899 patent (cited above) is withdrawn because Zaborina II reference is no longer art.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26-28, 42, 46, and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26-28, 42, 46, and 48 recite the limitation "the cytotoxic factor" in line 1. There is insufficient antecedent basis for this limitation in the claim. Amending the limitation to "compound" would obviate this rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MISOOK YU, Ph.D. whose telephone number is 571-272-0839. The examiner can normally be reached on 8 A.M. to 5:30 P.M., every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MISOOK YU, Ph.D.
Examiner
Art Unit 1642